APPROVED

LLOYD'S REGISTER OF SHIPPING
JUN 6 1933
KOBE

[illegible]
for H. J. Case

220 Nagara Maru

222 **NARUTO MARU**

~~388 Nako Maru~~

Revised plan

S. NOS. 220. ~~388.~~ 222.

STRUCTION PROFILE
AND
DECK PLANS.

009570-009579-0024

SCALE 1:100

日本郵船株式會社

一般構造圖

尺度	1 : 100
工事番號	S.220 388 222.
横濱船渠株式會社 設計課	
課長	
係長	
係員	
製圖	M. Komo
同年月日	昭和　年　月　日
出圖	
類別番號	H.202
圖面番號	

2.100 × 810

GEN. BOX № 520

③

設船一二一〇協第五號

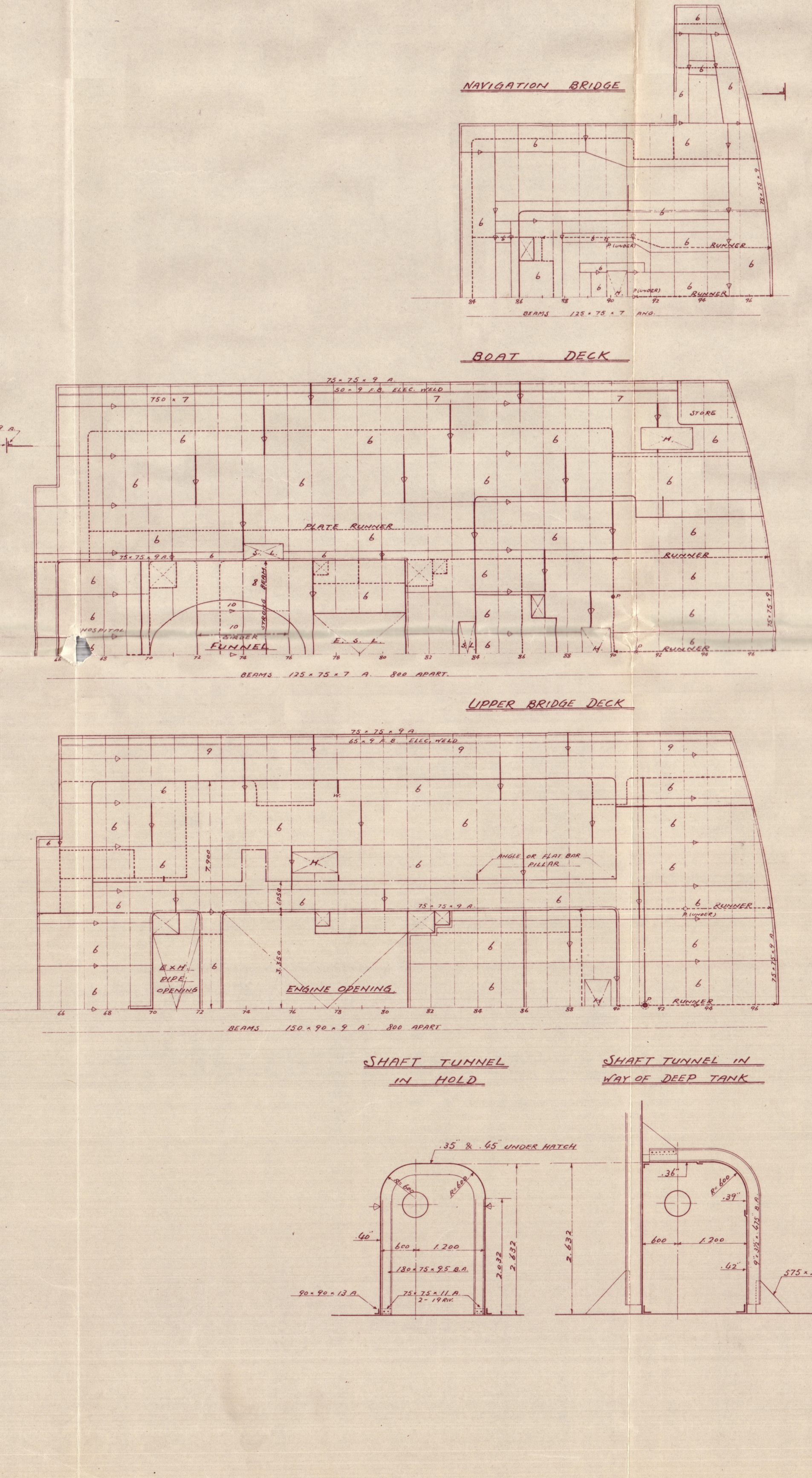
横濱船渠株式會社
設計課
8. 5. 19
YOKOHAMA DOCK, CO., LTD.

009570 - 009579 - 0024

CARGO HATCH

ITEMS / DECKS		ON BRIDGE DECK		ON UPPER DECK						ON 2ND DECK					REMARKS
NO OF HATCH WAY		NO 3	NO 4	NO 1	NO 2	NO 3	NO 4	NO 5	NO 6	NO 1	NO 2	NO 3	NO 5	NO 6	
SIZE OF HATCH WAY		8.800×6.100	7.200×6.700	5.850×5.000	11.200×6.100	9.600×6.100	8.000×6.700	11.200×6.100	7.200×5.500	5.850×5.000	11.200×6.100	9.600×6.100	11.700×6.100	7.200×5.500	
NO OF WEB						6.	5.			3	7	6	7	4	
SPACING OF WEB						1.371	1.333			1.462	1.400	1.371	1.400	1.440	
WEB BEAMS	WEB PLATE					430×.36"	445×.36"			380×.34"	480×.36"	480×.36"	480×.36"	430×.36"	BOTH SIDE FULL WELD DEPTH OF WEBS TAKEN TO BE INSIDE FLANGES.
	TOP & BOTTOM BAR					230×.60 F.B.	230×.71 F.B.			230×.50 F.B.	230×.55 F.B.	230×.55 F.B.	230×.55 F.B.	230×.50 F.B.	
SIDE COAMING		.44"	.44"	.44"	.44"			.44"	.44"						
END COAMING		.44"	.44"	.44"	.44"			.44"	.44"						
SIDE COAMING ANG.		90×90×13	90×90×13	90×90×13	90×90×13	B.A. 9"×3½"×.475"	B.A. 9"×3½"×.475"	90×90×13	90×90×13	B.A. 9"×3½"×.475	B.A. 9"×3½"×.475	B.A. 9"×3½"×.475	B.A. 9"×3½"×.475	B.A. 9"×3½"×.475"	
END COAMING ANG.		"	"	"	"	"	"	"	"	"	"	"	"	"	
HATCH BOARD		STEEL COVER	STEEL COVER	STEEL COVER	STEEL COVER	65 O.P.	65 O.P.	STEEL COVER	STEEL COVER	75 O.P.	75 O.P.	75 O.P.	75 O.P.	75 O.P.	
STIFF TO SIDE COAMING		B.A. 180×75×9.5	B.A. 180×75×9.5	B.A. 180×75×9.5	B.A. 180×75×9.5			B.A. 180×75×9.5	B.A. 180×75×9.5						
" " END "		"	"	"	"			"	"						

POOP DECK
BOAT DECK
UPPER BRIDGE DECK
BRIDGE DECK
UPPER DECK
FORECASTLE DECK
NO 6 HOLD
NO 5 HOLD
NO 4 HOLD
NO 3 HOLD
NO 2 HOLD
NO 1 HOLD
TUNNEL WELL
NO 1 PANTING STRINGER
NO 2 PANTING STRINGER
NO 3 PANTING STRINGER


NAVIGATION BRIDGE
BOAT DECK
UPPER BRIDGE DECK
ENGINE OPENING
SHAFT TUNNEL IN HOLD
SHAFT TUNNEL IN WAY OF DEEP TANK

POOP DECK
BRIDGE DECK
BREAK
FORECASTLE DECK
ENGINE OPENING
UPPER DECK
UPPER DECK
NO 6 HATCH
NO 5 HATCH
NO 4 HATCH
NO 3 HATCH
NO 2 HATCH
NO 1 HATCH
2ND DECK
2ND DECK
NO 1 PANTING STRINGER
NO 2 PANTING STRINGER
NO 3 PANTING STRINGER
SIDE STRINGER
WING TANK TOP
INNER BOTTOM

NOTE

ALL BULB ANGLES & CHANNELS TO BE OF "YAWATA'S REVISED STANDARDS" AS STATED IN MM. UNITS.

UNDER DECK MACHINERIES TO BE SUITABLLY STRENGTHENED BY PILLARS OR GIRDERS

STIFFENER TO CENTER LINE BHD (AT ENDS OF HATCHWAYS) TO BE BRACKETED TOP & BOTTOM.

APPROVED
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JUN 6 1933
KOBE

Revised plan

S. NOS. 220. ~~388~~. 222.

CONSTRUCTION PROFILE
AND
DECK PLANS.
SCALE 1:100

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for H. J. Cox

~~Revised plan~~

S. NOS. 220. ~~388.~~ 222

MIDSHIP SECTION

SCALE 1 : 25

009570 - 009579 - 0023

①

GEN. BOX No 520

220 Nagara Maru

222 **NARUTO MARU**

~~388 Nako Maru~~

009570 - 009579 - 0023

中央橫斷面圖

尺度	1 : 25
工事番號	S.220-388-222.

橫濱船渠株式會社
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MIDSHIP SECTION.

SCALE 1/25

PRINCIPAL DIMENSIONS

LENGTH OVERALL	141.500 m
LENGTH BETWEEN P.P.	136.000
BREADTH MLD.	19.000
DEPTH MLD. TO UPPER DECK	10.500
LOAD DRAUGHT MLD.	8.230
SHEER AT UPPER DECK FORWARD	2.900
" " " " AFTWARD	1.400
CAMBER OF SECOND DECK	150
" " UPPER DECK & ABOVE	380
TWEEN DECK HEIGHT. 2ND. TO UPPER DECK (AT CENTRE)	3.100
" " " UPPER TO BRIDGE DECK	2.450
" " " UPPER TO F'CLE & POOP DECK	2.300

EQUIPMENT NUMBER

L×(B+D)	446.22'×(62.34'+34.45')	= 43,189.63
F'CLE	40.58'×7.55'×.75'	= 229.78
BRIDGE	173.24'×8.04'×.75'	= 1,044.64
POOP	23.23'×7.55'×.75'	= 131.54
DECK HOUSES.	204.73'×7.71'×.50'	= 789.23
EQUIPMENT NUMBER		45,384.82

LIST OF EQUIPMENTS

3- BOWER ANCHORS, STOCKLESS (EACH)	77.33 C.W.T.
1- STREAM ANCHOR (EX. STOCK)	22.00"
300 FMS. 2 7/16" STUD CHAIN CABLE FOR BOWER ANCHORS	
1- 120 FMS. 4½×6×24 SPECIAL FLEXIBLE STEEL WIRE ROPE FOR STREAM ANCHOR	
1- 130 FMS. 5½×6×24 " " " " " " TOW LINE	
3- 100 FMS. 3"×6×12 FLEXIBLE STEEL WIRE ROPE FOR HAWSERS	
2- 100 FMS. 2¾×6×12 " " " " " WARPS	
4- 100 FMS. OF 8" M.R. FOR WARPS.	

CLASS. TEISHINSHŌ'S 1ST CLASS & LLOYD'S ✠ 100 A 1.
FULL SCANTLING VESSEL

SCANTLING NUMERALS
(FEET UNITS)

D		34'45
L×D	446.22'×34.45'	= 15,372.28
L×(B+D)	446.22'×(62.34'+34.45')	= 43,189.63
L/D TO UPPER DECK	446.22'/34.45'	= 12.95
" " BRIDGE DECK	446.22/42.49'	= 10.50
"d" (FOR FRAMING) SEE TABLE OF MAIN SIDE FRAMING BELOW		

FORGING & CASTING

STEM.	UPPER PORTION MILD STEEL PLATE & LOWER PORTION ROLLED BAR AS PER PLAN
STERN FRAME.	CAST STEEL AS PER DETAIL PLAN
RUDDER.	SIMPLEX BALANCED STREAM-LINE RUDDER AS PER DETAIL PLAN

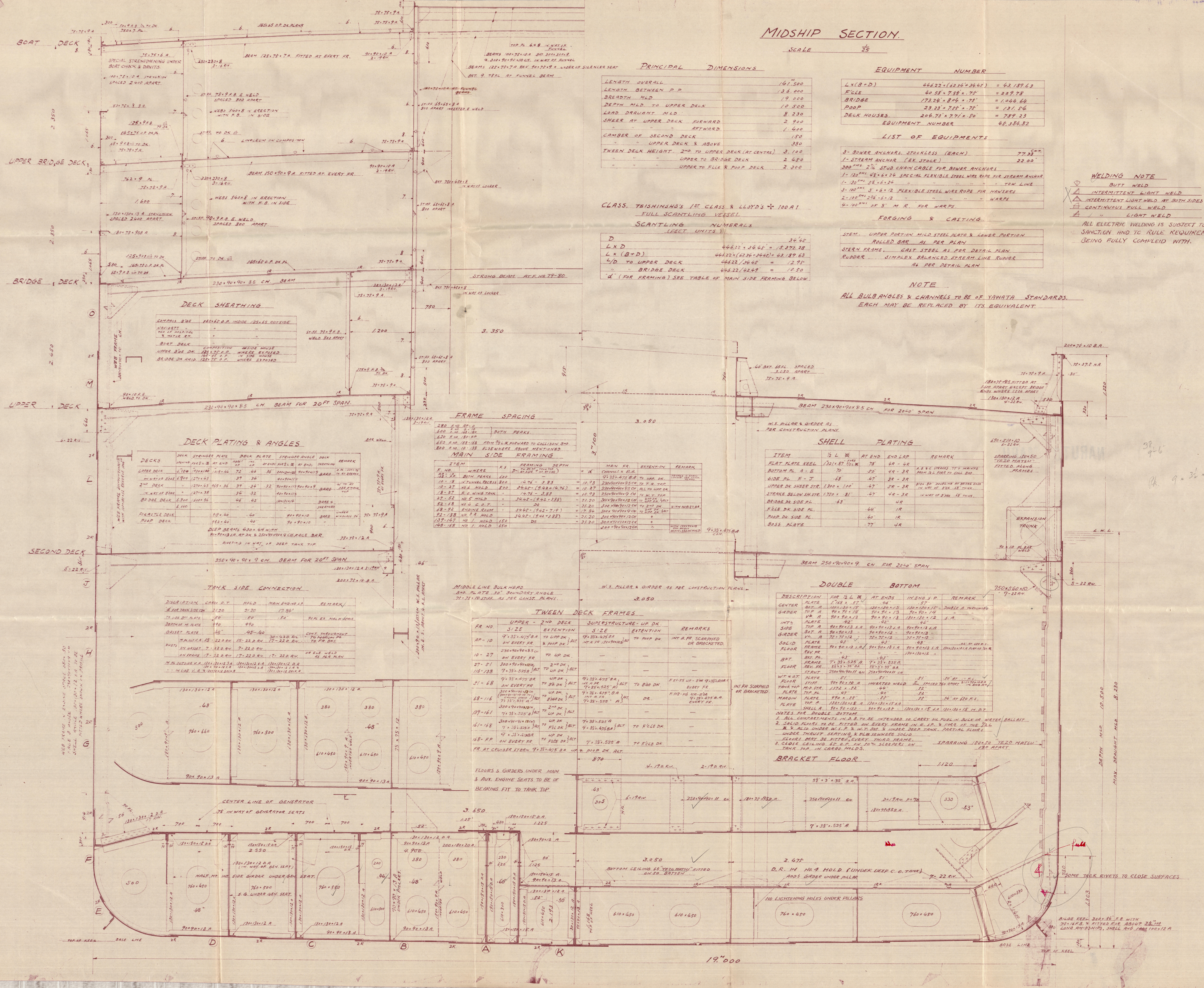
NOTE

ALL BULB ANGLES & CHANNELS TO BE OF YAWATA STANDARDS. EACH MAY BE REPLACED BY ITS EQUIVALENT.

WELDING NOTE

▽	BUTT WELD
△	INTERMITTENT LIGHT WELD
△	INTERMITTENT LIGHT WELD AT BOTH SIDES
△	CONTINUOUS FULL WELD
△	" LIGHT WELD

ALL ELECTRIC WELDING IS SUBJECT TO OWNER'S SANCTION AND TO RULE REQUIREMENTS BEING FULLY COMPLEID WITH.


BOAT DECK
SPECIAL STRENGTHENING UNDER BOAT CHOCK & DAVITS.
UPPER BRIDGE DECK
BRIDGE DECK
STRONG BEAM AT F. NO 79-80
WEB FRAME 300×90×90×10 CH.
UPPER DECK
230×90×90×8.5 CH. BEAM FOR 20FT. SPAN.
BEAM 230×90×90×8.5 CH FOR 20'-0" SPAN
W.S. PILLAR & GIRDER AS PER CONSTRUCTION PLANS
3.050
3.100
SECOND DECK
250×90×90×9 CH. BEAM FOR 20FT. SPAN
BEAM 250×90×90×9. CH. FOR 20'-0" SPAN
DEEP BEAMS 430×.44 WITH 90×90×13 S.A. AT DK & 250×90×90×9 CH. FACE BAR
RIVETING IN WAY OF DEEP TANK TOP
EXPANSION TRUNK
L.W.L.
MIDDLE LINE BULKHEAD BHD. PLATE .30" BOUNDARY ANGLE 75×75×10 STIFF. AS PER CONST. PLANS.
FLOORS & GIRDERS UNDER MAIN & AUX. ENGINE SEATS TO BE OF BEARING FIT TO TANK TOP
CENTER LINE OF GENERATOR
.75 IN WAY OF GENERATOR SEATS
HALF HT. INT. SIDE GIRDER UNDER GEN. SEAT.
S.G. UNDER GEN. SEAT.
BOTTOM CEILING 65 "YEZO MATSU" FITTED ON 50 BATTEN
D.R. IN No.4 HOLD (UNDER DEEP C.O. TANK) ADD'L GIRDER UNDER PILLAR
NO LIGHTENING HOLES UNDER PILLARS
SOME TACK RIVETS TO CLOSE SURFACES
BILGE KEEL 300×.56 F.B. WITH 75×75×10 A.
DEPTH MLD 10.500
MAX. DRAUGHT MLD 8.230
3.650
2.475
BASE LINE
TOP OF KEEL
19.000
A
B
C
D
E
F
G
H
J
K
L
M
O

DECK SHEATHING

COMPASS B'GE	145×65 O.P. INSIDE 125×65 OUTSIDE
NAVIGAT'N "	" "
TOP OF HOSPITAL & MOTOR RM.	" "
BOAT DECK	" "
UPPER B'GE DK.	COMPOSITION INSIDE HOUSE 125×75 O.P. WHERE EXPOSED
BRIDGE DK AMID.	145×65 O.P. IN SIDE HOUSE 125×75 O.P. WHERE EXPOSED

DECK PLATING & ANGLES

DECKS	DECK OPENING	STRINGER PLATE FOR ½L ⊗	STRINGER PLATE AT END	DECK PLATE ABREᵀ OP.	DECK PLATE INS. OP.	DECK PLATE AT ENDS	STRINGER ANGLE FOR ½L ⊗	STRINGER ANGLE AT ENDS	DECK SHEATHING	REMARK
UPPER DECK	6.100	1.930×1.00"	1.015×.44"	.72"	.46	.36"	200×200×25	90×90×11.5	BARE	D. PL. 1.220×.76" TH. AT BREAKS
" IN WAY OF B'DGE	6.700	1.270×.43		.39"	.34"		90×90×11.5			
2ND DECK	"	1.270×.43"	965×.36"	.39"	.34"	.32"	90×90×11.5	90×90×9	BARE	.41" TH. AT DEEP TANK TOP
IN WAY OF B'DGE	"	1.270×.38		.34"	.32"		90×90×11.5			
BRIDGE DECK	6.700	1.600×.56		.46"	.42"		130×130×14		BARE & SHEATHED	
" "	6.100	"		"	"		"			
FOCASTLE DECK			915×.40"		.40"		90×90×10		BARE	UNDER WINDLASS .50"
POOP DECK			952×.40"		.40"		90×90×10		"	

FRAME SPACING

280	F. No. AP-0
600	F. No. 0-10 F. No. 168-180 } BOTH PEAKS.
620	F. No. 180-FP
650	F. No. 138-168 FROM 3/5 L ⊗ FORWARD TO COLLISON BHD.
800	F. No. 10-138 ELSEWHERE ABOVE MENTIONED

MAIN SIDE FRAMING

ITEM F. NO.	ITEM WHERE	F.S.	FRAMING DEPTH D-(TW DK HT AT SIDE + TANK TOP HT. AT SIDE)	= "d"	MAIN FR. CHANNEL & B.A.	EXTENTION	REMARK
AP-10 168-FP	BOTH PEAKS	600	—		9"×3½"×.475" B.A.	TO UPP. DK.	FRAMES IN CHAIN LOCKER, SEE CONST. PLANS
10-18	IN TUNNEL RECESS	800	14.76'-3.83'	= 10.93	230×90×90×8.5 CH.	TO T.R. TOP	
10-27	No 6 HOLD	800	34.45-(9.42+14.76)	= 10.27	230×90×90×8.5 CH.	ALL TO UPP. DK	
18-27	F.O. WING TANK	"	14.76-3.83	= 10.93	250×90×90×9 CH.	TO W.T. TOP	
27-52	No 5 HOLD	"	34.45-(9.42+3.83)	= 21.20	300×90×90×12 CH.	TO 2ND DK. UPP. DK. } ALT	
52-68	No 4 C.O.T.	"	Do	= 21.20	300×90×90×12 CH.	TO 2ND DK.	WITH HORIZ'L GR.
68-92	ENGINE ROOM	"	34.45-(9.42+7.19)	= 17.84	300×90×90×9 CH.	TO 2ND DK. UPP. DK. } ALT.	
92-138	No. 3.2. HOLD		34.45-(9.42+3.83)	= 21.20	300×90×90×12 CH	"	
139-147	No 1. HOLD	650	Do	= 21.20	300×90×90×12 CH.	"	
148-168	No 1. HOLD	650			300×90×90×12 CH.	"	WITH 150×90×12 REV. ANGLE DEPTH=330 IN HOLD

SHELL PLATING

ITEM	½L ⊗	AT END	END LAP	REMARK
FLAT PLATE KEEL	1.321×.87" FORE 3/5 L ⊗	.78"	4R - 4R	
BOTTOM PL. A - E	.70"	.50"	4R - 3R	A.B. & C. STRAKES .77" T MAINT'D FROM ½L FORD TO COLL BHD.
SIDE PL. F - J	.68"	.47"	3R - 3R	
UPPER DK SHEER STR.	1.300×1.00"	.47"	5R - 3R	810×.80" DOUBLING AT BRIDGE ENDS IN WAY OF B'GE .68" THICK.
STRAKE BELOW SH. STR.	1.750×.81"	.47"	4R - 3R	IN WAY OF B'DGE .68" THICK.
BRIDGE DK. SIDE PL.	.63"		4R	
F'CLE DK. SIDE PL.		.44"	1R	
POOP DK. SIDE PL.		.40"	1R	
BOSS PLATE		.77"	4R	

TANK SIDE CONNECTION

DISCRIPTION		CARGO O.T.	HOLD	MAIN ENGINE S.P.	REMARK
"d" FOR TANK SIDE CON'		21.20	21.20	17.84'	
T'K SIDE B'KT PLATE		.50"	.50"	.50"	90 FL EX MACH SPACE
DEPTH OF M. PLATE		990	990		
GASSET PLATE		.45"	.45-.40		CONT. THROUGHOUT
RIVETS	M. PL. OUT V.A	15-22 D. RIV.	15-22 D. RIV	30-22 D. RIV. --- 17-22 D. RIV. ---	TO MARGIN PL TO FR. BKT.
	ON GASSET	7-22 D. RIV	7-22 D. RIV		
	ON FRAME	17-22 D. RIV	17-22 D. RIV.	17-22 D. RIV.	OR ELE. WELD AS PER PLAN
M. PL. OUTSIDE V.A.		130×130×12 S.A	130×130×12 S.A	130×130×12 D.A	
" " IN SIDE V.A.		130×90×12 S.A & 130×90×12 BACK. A	130×130×12 S.A	130×130×12 S.A. & 130×130×12 BACK. A.	

TWEEN DECK FRAMES

FR. NO.	UPPER - 2ND DECK SIZE	UPPER - 2ND DECK EXTENTION	SUPERSTRUCTURE - UP. DK. SIZE	SUPERSTRUCTURE - UP. DK. EXTENTION	REMARKS
AP-10	9"×3½"×.475" B.A ON EVERY FR.	TO UPP. DK & POOP DK. } ALT.	9"×3½"×.475" B.A INT. A. FR 150×90×10.5 } ALT	TO POOP DK.	INT. A. FR. SCARPHED OR BRACKETED.
10-27	230×90×90×8.5 CH. ON EVERY FR.	TO UP. DK.	—	—	—
27-51 116-138	300×90×90×12 CH. 7×3½"×.525" A } ALT.	TO 2ND DK. UP. DK. } ALT.	—	—	—
51-68	9"×3½"×.475" B.A. ON EVERY FR.	TO UP. DK. B'G. DK } ALT.	9"×3½"×.475" B.A. INT. A FR. 7"×3½"×.525" A } ALT.	TO B'GE DK.	F. 51-55 UP.-B'GE 9"×3½"×.475 B.A. EVERY FR.
68-116	300×90×90×12 CH. (300×90×90×9 CH. IN ENGINE SPACE) 7"×3½"×.525" A } ALT.	TO UP. DK. B'DGE DK } ALT	9"×3½"×.475" B.A INT. A. FR. 7"×3½"×.525" A } ALT.	Do.	F. 112-116 UP.-B'DE 9"×3½"×.475" B.A. EVERY FR.
139-161	300×90×90×12 CH. 7"×3½"×.525" A } ALT.	TO 2ND DK. UP. DK. } ALT.	—	—	—
161-168	300×90×90×12 CH. 7"×3½"×.525" A } ALT.	TO UP. DK F'CL DK } ALT.	7"×3½"×.525" A 9"×3½"×.475" B.A } ALT.	TO F'CLE DK.	—
168-FP	9"×3½"×.475" B.A. ON EVERY FR.	TO UP. DK. F'CLE DK } ALT	7"×3½"×.525" A	TO F'CLE DK.	—
FR. AT CRUISER STERN 9"×3½"×.475" B.A. UP. & POOP DK. ALT.					

INT. FR. SCARPHED OR BRACKETED.

DOUBLE BOTTOM

DESCRIPTION		FOR ½L ⊗	AT ENDS	IN ENG. S.P.	REMARK
CENTER GIRDER	PLATE	1.168×.57"	.46"	.57"	
	BOT. A	130×130×15	130×130×15	130×130×15	DOUBLE A. THROUHOUT
	TOP A	90×90×14	90×90×13	90×90×14	" "
	V'L A	90×90×13	90×90×13	130×130×12	S.A. "
INT'L SIDE GIRDER	PLATE	.42"	.42"	.46"	
	TOP A	90×90×13 S.A	90×90×13 S.A	90×90×13 S.A	
	BOT. A	90×90×13 "	90×90×13 "	90×90×13 "	
	V'L A	75×75×12 "	75×75×12 "	75×75×12 "	
SOLID FLOOR	PLATE	.43"	.43"	.48"	.42" AT 650 F.S.
	FRAME	90×90×13 S.A	90×90×13 S.A	90×90×13 S.A	130×130×12 S.A FORD OF ½L ⊗
	REV. FR.	" "	" "	130×130×12 "	
BKT. FLOOR	BKT. PL.	.43"	.43"		
	FRAME	7"×3½"×.525" A.	7"×3½"×.525 A.		
	REV. FR.	5½"×3"×.35" B.A.	5½"×3"×.35" B.A.		
	STRUT	250×90×90×11 CH	250×90×90×11 CH.		
W.T. & O.T. FLOOR	PLATE	.51"	.51"	.51"	.50" AT 650 F.S.
	STIFF.	90×90×10 A	INVERTED WELD ⌶ SPACED 760 APART		200×75×10 B.A. IN ENG. R'M
TANK TOP PLATE	MID. STR.	1.372×.52"	.44"	.52"	
	TOP PL.	.45"	.40"	.52"	
MARGIN PLATE	PLATE	990×.55"	.55"	.55"	.54" AT 650 F.S.
	TOP A.	130×130×15 A	130×130×15 S.A		
	SHELL A.	90×90×13.5 "	90×90×13.5 "	130×130×15 S.A	130×130×15 IN D.T

NOTES FOR DOUBLE BOTTOM

1. ALL COMPARTMENTS IN D.B. TO BE INTENDED TO CARRY OIL FUEL IN BULK OR WATER BALLAST
2. SOLID FLOORS TO BE FITTED ON EVERY FRAME IN E. SP. & FORD. OF THE ½L ⊗ & ALSO UNDER W.S.P. & W.T. BHD. & UNDER DEEP TANK. PARTIAL FLOORS UNDER THRUST SEATING & ELESEWHERE SOLID FLOORS MAY BE FITTED ON EVERY THIRD FRAME.
3. CLOSE CEILING 65 O.P. ON 50% SLEEPERS ON TANK TOP IN CARGO HOLDS.

SPARRING 150×50 "YEZO MATSU" 180 APART

BRACKET FLOOR

Ch. 9 × 3½ × 475

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MIDSHIP SECTION

SCALE 1 : 25

009570 - 009579 - 0023

中央横斷面圖

尺度	1 : 25
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横濱船渠株式會社 設計課	
課長	
係長	
係員	
製圖	
同年月日	昭和 年 月 日
出圖	昭和 年 月 日
類別番號	H.201
畫面番號	H.822

009570 - 009579 - 0023

"NAGARA MARU" (YARD. Nº S. 220.)
"NARUTO MARU" (" Nº S. 222.)

MIDSHIP SECTION.

SCALE. 1 : 25.

第二百二拾、二拾二番船

長良丸、鳴門丸

尺度二十五分之一

中央横斷面圖

完[illegible]圖

横濱船渠株式會社
設計課
9. 12. 29
YOKOHAMA DOCK, CO., LTD.

弘H91009.

A.K.

1,100 × 800

007352-007362-0001

BOAT DECK
UPPER BRIDGE DECK
BRIDGE DECK
UPPER DECK
SECOND DECK
DECK SHEATHING
DECK PLATING & ANGLES
TANK SIDE CONNECTION
FRAME SPACING
MAIN SIDE FRAMING
TWEEN DECK FRAMES
SHELL PLATING
DOUBLE BOTTOM
BRACKET FLOOR
CASING TOP
SILENCER PLATFORM
AT F.No 74 & 75. ONLY.
UNDER OF SILENCER SEAT.
BEAM KNEE TO FRAME
S.No 220. — E. WELD.
" 222. — 7-22. RIV.
S.No 222
TANK SIDE FR BKT.
17-22 m/m Ø RIV.
610 × 380
750
22 m/m Ø RIV. P. = 70.
2 TACK RIVETS TO CLOSE SURFACES.
1.803
BILGE KEEL 300 × 5.6" F.B. WITH 75 × 16 F.B. & FITTED FOR ABOUT 35m 000 LONGAMIDSHIPS. SHELL ANG. 100 × 100 × 12 A
TOP OF KEEL.
BASE LINE
DEPTH MLD 10.500
MAX. DRAUGHT MLD. 8.350
CENTER LINE OF GENERATOR
19m 000
3.050
3.650
3.350

MIDSHIP SECTION

SCALE $\frac{1}{25}$

PRINCIPAL DIMENSIONS.

LENGTH OVERALL (EXCLUDING BOW OVER HANG)	141.520 M
LENGTH BETWEEN P.P	136.000
BREADTH MLD.	19.000
DEPTH MLD. TO UPPER DECK	10.500
LOAD DRAUGHT MLD	8.355
SHEER AT UPPER DECK FORWARD.	2.900
" " " " AFTWARD.	1.400
CAMBER OF SECOND DECK	150
" " UPPER DECK & ABOVE.	380
TWEEN DECK HEIGHT 2ND TO UPPER DECK (AT CENTRE)	3.100
" " " UPPER TO BRIDGE DECK	2.450
" " " UPPER TO F'CLE & POOP DECKS	2.300

CLASS. TEISHINSHO'S 1ST CLASS & LLOYD'S ✠ 100 A 1, ✠ L. M. C & R. M. C (FULL SCANTLING VESSEL.)

SCANTLING NUMERALS

(FEET UNITS)

D	34'45
L × D	446.22' × 34.45' = 15.372.28
L × (B+D)	446.22' × (62.34' + 34.45') = 43.189.63
L/D TO UPPER DECK	446.22'/34.45' = 12.95
" " BRIDGE DECK	446.22'/42.49' = 10.50
d" (FOR FRAMING) SEE TABLE OF MAIN SIDE FRAMING BELOW.	

EQUIPMENT NUMBER.

L × (B+D)	446.22 × (62.34' + 34.45')	= 43.189.63
F'CLE	40.58' × 7.55' × .75'	= 229.78
BRIDGE	173.24' × 8.04 × .75'	= 1.044.64
POOP	23.23' × 7.55' × .75'	= 131.54
DECK HOUSES	204.73' × 7.71' × .50'	= 789.23
EQUIPMENT NUMBER.		45.384.82

LIST OF EQUIPMENTS.

	C.W.T.
3 - BOWER ANCHORS STOCKLESS (EACH)	77.33
1 - STREAM ANCHOR (EX. STOCK)	22.00 "
300 FMS 2 7/16" STUD CHAIN CABLE FOR BOWER ANCHORS.	
1 - 120 FMS 4½" × 6 × 24 SPECIAL FLEXIBLE STEEL WIRE ROPE FOR STREAM ANCHOR.	
1 - 130 FMS 5½" × 6 × 24 " " " " " TOW LINE.	
3 - 100 FMS 3" × 6 × 12 FLEXIBLE STEEL WIRE ROPE FOR HAWSERS	
2 - 100 FMS 2¾" × 6 × 12 " " " WARPS.	
4 - 100 FMS OF 8" M. R. FOR WARPS.	

FORGING & CASTING.

STEM UPPER PORTION MILD STEEL PLATE & LOWER PORTION FORGED BAR AS PER PLAN.

STERN FRAME. CAST STEEL AS PER DETAIL PLAN.

RUDDER. SIMPLEX BALANCED STREAM LINE RUDDER AS PER DETAIL PLAN.

NOTE

ALL BULB ANGLES & CHANNELS TO BE OF YAWATA STANDARDS EACH MAY BE REPLACED BY ITS EQUIVALENT

S.No 222
BRACKET OF PILLAR HEAD.
BRIDGE & 2ND. DK. SIMILAR.

WELDING NOTE.

BUTT WELD.
INTERMITTENT WELD
INTERMITTENT WELD AT BOTH SIDES.
CONTINUOUS WELD.
" "

ALL ELECTRIC WELDING IS SUBJECT TO OWNER'S SANCTION AND TO RULE REQUIRMENTS BEING FULLY COMPLEID WITH

"NAGARA MARU" (YARD No S.220.)
"NARUTO MARU" (" No S.222.)

MIDSHIP SECTION.
SCALE. 1 : 25.

完成圖

第二百二拾、二拾二番船
長良丸、鳴門丸

中央横斷面圖

尺度二十五分之一

横濱船渠株式會社
設計課
9. 12. 29
YOKOHAMA DOCK, CO., LTD.

弘H91009

A.K.

日本郵船株式會社

船尾骨栈及舵

STERN FRAME & RUDDER

尺度	1 : 25 1 : 10
工事番号	S. 220-222

横濱船渠株式會社
設計課

課長	
係長	Y. Murata
係員	
製図	海上
年月日	昭和8年3月25日
出図	
類別番号	H211
図面番号	浜H845.

1,230 × 800

(13)

ロイド

~~GEN. BOX NO~~ 108

220 Naruto Maru

222 NARUTO MARU

設計課
8. 10. 16
YOKOHAMA DOCK, CO., LTD.

009570 - 009579 - 0022

S. 220, ~~221~~ & 222.

STERN FRAME & RUDDER
FOR
STEEL SINGLE SCREW CARGO MOTOR VESSELS.

PARTICULARS.

LENGTH (PP.)	136.M000
BREADTH (MLD.)	19.M000
DEPTH (")	10.M500
DRAUGHT (")	8.M230
MAX. SERVICE SPEED	15K.
RUDDER AREA	17.M²436
RUDDER ANGLE	35°

RUDDER AREA, &C.

WHERE	RUDDER AREA A	C.G. OF A FROM PINTLE D	MOMENT A × D
ABAFT C.L. OF PINTLE	2.M120 × 5.M550 = 11.M²766	+ 1.M060	+ 12.M³47 (440 FT³)
BEFORE C.L. OF PINTLE	5.M250 × 1.M080 = 5.M²670	− 0.M540	− 3.M³06
TOTAL	17.M²436		+ 9.M³41
MAX. SERVICE SPEED			15K.
RULE DIAMETER OF STOCK			10¾" (≒ 273 M/M)
ACTUAL " " "			280 M/M

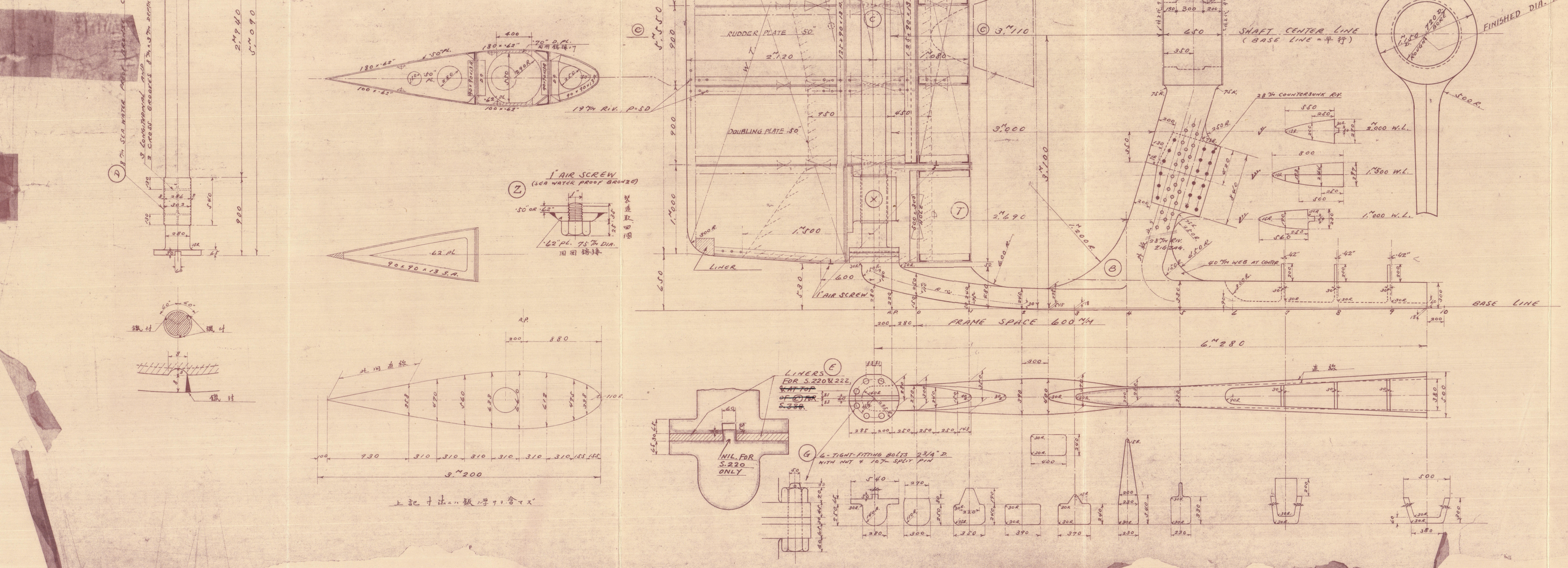
LIFTING EYE (RUDDER HEAD)
LIFTING EYE (RUDDER BODY)
製造數壹個
製造數貳個
NO. OF THREAD 4½"
scale 1:4
RING WELD
DOUBLING
scale 1:5
a-a SECTION
約 1,048
約 772
(RUDDER COUPLING ノ寸法ハ実測ノ上決定ノ事)
RUDDER COUPLING
REMOVABLE CAP
d-d SECTION
b-b SECTION
c-c SECTION
FASTENING THE REMOVABLE CAP (UPPER)
FASTENING THE REMOVABLE CAP (LOWER)
FASTENING PIECE
scale 1:5
Z-Z SECTION
UPPER DECK C.L.
SHAFT CENTER LINE (BASE LINE = 平行)
FINISHED DIA. 765 m/m
BASE LINE
FRAME SPACE 600 M/M
RUDDER PLATE
DOUBLING PLATE
1½" AIR SCREW
LINER
RING WELD
LINERS FOR S.220 & 222
NIL FOR S.220 ONLY
6-TIGHT FITTING BOLTS
GALVANIZED WASHER
鋲接ト鍛打トヲ並用セル箇所ハ鋲接ヲ先ニスベシ

APPROVED
LLOYD'S REGISTER OF SHIPPING
OCT 25 1933
KOBE

M. M. Parker for 坰 Cox

出圖		工事區分		H. 1	
造船	×	造機	又	修理	艦本
新造	×	錬鉄		船渠	船主
現図	/	鋳造		運輸	監督
木工		銅工		製帆	逓信
艤装		製罐			ロイド 4
撓鉄		旋盤		監査 ×	海協
機械		仕上		重量	承認
取付	×	工具		扣 /×	註文
鈑鉄		電氣		浦賀 2	註承
鋲接					見積

浦賀ト協議ズミ（昭八、四、七）



FRAME SPACE 600 M/M
上記寸法ハ鈑ノ厚サヲ含マズ

	MARK	NO	DESCRIPTION	MATERIAL	製作工場	MARK	NO	DESCRIPTION	MATERIAL	製作工場
社内製作	Ⓓ	2	BRONZE COVERINGS FOR RUDDER SHAFT	BRONZE	4セク	Ⓤ	2	UPPER FASTENING PIECES	FORGED STEEL	レセク
	Ⓞ	1	LIGNUMVITAE BUSH	LIGNUMVITAE	セク	Ⓥ	2	LOWER " "	"	"
	Ⓟ	1	LIFTING EYE FOR RUDDER HEAD	FORGED STEEL	レセク	Ⓦ	46	FASTENING BOLTS WITH NUTS & SPLIT PINS	MILD STEEL	セク
	Ⓠ	2	" EYES FOR RUDDER BODY	"	"	Ⓧ	42	" " " & WASHERS	"	"
	Ⓡ	1	RUDDER BODY	MILD STEEL		Ⓨ	2	PROTECTIVE SCREWS	SEA WATER PROOF BRONZE	"
	Ⓢ	1	UPPER REMOVABLE CAP	"		Ⓩ	4	AIR SCREWS	"	"
	Ⓣ	1	LOWER " "	"						

		MARK	DESCRIPTION	MATERIAL				REMARKS.
				CAST STEEL	FORGED STEEL	MILD STEEL	OTHERS	
社外註文	STERN FRAME	Ⓐ	1 - STERN POST (UPPER PART)	10.T772K.				
		Ⓑ	1 - " " (LOWER PART)	5.T411K.				
		Ⓒ	1 - RUDDER SHAFT		2.T609K.			RUDDER ニ取付ク2箇ノBEARING Ⓧ ハ別図ニ依ル
		~~Ⓓ~~	~~2 - BRONZE COVERINGS FOR RUDDER SHAFT~~				~~BRONZE 67K.~~	社内製作
		Ⓔ	2 - LINERS FOR (RUDDER SHAFT		55K.			
		Ⓕ	6 - UPPER COUPLING BOLTS WITH NUTS & SPLIT PINS		92K.			
		Ⓖ	6 - LOWER COUPLING BOLTS WITH NUT & SPLIT PIN		97K.			
	RUDDER	Ⓗ	1 - RUDDER HEAD		4.T105K.			
		Ⓘ	1 - RUDDER COUPLING	876K.				
		Ⓙ	1 - PINTLE WITH NUT & SPLIT PIN & HARD STEEL SHOE		93K.		HARD STEEL 5K.	
		Ⓚ	1 - HEEL PIECE (WITH HOLDING SCREW				HARD STEEL 7K.	
		Ⓛ	1 - BUSH FOR PINTLE				GUN METAL 11K.	
		Ⓜ	1 - WASHER " "			5K.		
		Ⓝ	6 - COUPLING BOLTS WITH NUTS & SPLIT PINS & SET SCREWS		166K.			
			SUM	17.T059K	7.T217K.	5K.		

注意

一、本図記入ノ寸法ハ凡テ仕上リ寸法ヲ示ス

一、材料及製品ニ就テハ「ロイド」及帝國海事協会規定ノ試験ニ合格セルモノタル事

一、着色ノ箇所ハ寸法通リ本仕上ゲトシ他ハ荒仕上ゲノ事

一、「リグナムバイテ・ブッシュ」及舵体及Ⓓ印ニテ示セル「ブロンズ・カバリング」ハ供給スルニ及バズ

一、寸法ハ承認ニ依リ多少変更スル事アルベシ

一、右表ニ掲グル数量及重量ハ凡テ壹隻分ノモノヲ示ス

一、ジ印切断面ハ本社供給ノ現寸型紙ニ依リ形状決定ノ事（七箇所）

~~一、Ⓗ印及Ⓘ印ニテ示セル「ラダー・ヘッド」及「ラダー・カップリング」ハ鍛接ノ寸法未定ナルモ次ノ製作方一時見合セノ事（五月十二日）~~ 六月十三日抹消

日本郵船株式會社

船尾骨材及舵
STERN FRAME & RUDDER

尺度	1:25 1:10
工事番号	S.220-222

橫濱船渠株式會社
設計課

課長	
係長	Y. Murata
係員	
製図	海上
年月日	昭和8年3月25日
出図	
類別番号	H211
図面番号	H845

1,230 × 800

009570-009579-0022

日本郵船株式會社

「船尾骨材及舵」一部改正

STERN FRAME & RUDDER ALTERATION.

縮尺	1/10, 1/25
工事番號	S.222
設計者	横濱船渠株式會社 設計課
課長	
[illegible]	
製圖	
検圖	海上
製圖年月日	昭和 9 年 5 月 14 日
用圖	
別冊番號	M.211-3
圖面番號	資H.9563

970 × 580

007352-007362-0002

~~EN BOX No~~ 108

40

設船九第二三八號

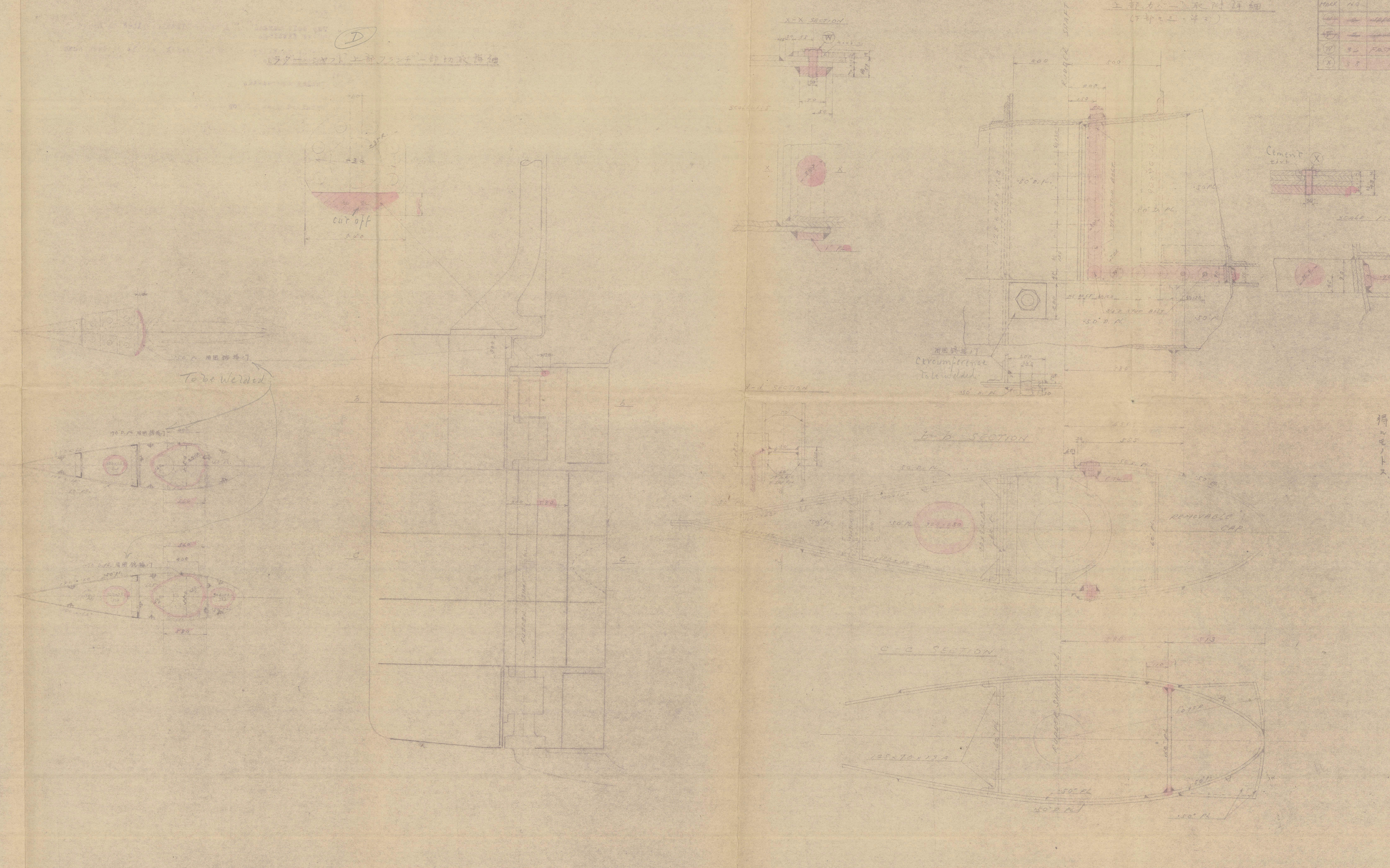
222. "Naruto Maru"

御承認用

横濱船渠株式會社
設計課
9. 5. [illegible]
YOKOHAMA DOCK CO.

© 2021
Lloyd's Register Foundation

007352-007362-0002


Ⓓ
ラダー・シャフト上部フランヂ一部切取詳細
cut off
To be Welded
Ⓒ
上部カバー取附詳細
（下部モ之ニ準ズ）
RUDDER SHAFT C.L.
500
500
200
X-X SECTION
Ⓦ
Cement
Ⓧ
Circumferencial To be Welded
A-A SECTION
B-B SECTION
REMOVABLE CAP
C-C SECTION

Ⓑ
製作表中改正部分

MARK	No.	DESCRIPTION	MATERIAL	[illegible]
~~Ⓤ~~	~~6~~	~~UPPER FASTENING~~ [illegible]	~~[illegible] STEEL~~	~~[illegible]~~
~~Ⓛ~~	~~2~~	~~LOWER "~~	~~"~~	~~"~~
Ⓦ	36	FASTENING STUD BOLTS	MILD STEEL	2/9
Ⓧ	58	" " "	"	"

Ⓐ

注意

一、Ⓦ印及Ⓧ印「タップ・ボールト」ハ取附后、頭ヲ軽ク鎔接シ置クベシ

一、右「ボールト」用一吋及〇・七吋厚ノ内面当金ノ「ネヂ山」腐蝕シタル時ハ新品ト取換ヘ得ルモノトス、

圖面經歷
本社計画

APPROVED
LLOYD'S REGISTER OF SHIPPING
MAY 31 1934
KOBE

出圖				工事區分	H.1		
造船	/	造機		修理		艦本	
現圖	/	鑄造		船渠		註文元	
取付	/	鍛鉄		製帆		監督	
機械		旋盤	/	運輸		遞信	
木工		仕上	2			ロイド	4
艤装		製罐		監査	/	海協	
鋳様	/	銅工		重量		註文	
鋲鉄	/	工具		扣	/	註扣	
		電氣				註承	3
						檢中	

日本郵船株式會社

「船尾骨材及舵」
一部改正畫

STERN FRAME & RUDDER
ALTERATION.

縮尺 1/10, 1/25
番號 S.222

[illegible]船渠株式會社
設計課

製圖 海上
年月日 昭和9年5月14日
組別番號 M.211-3
圖面番號 H.9569

號 上 仕 上

S. 220-222

舵軸受金具

尺度 1/5

RUDDER
GUIDE BEARING

御承認用

横濱船渠株式會社
設計課
8. 9. 16
YOKOHAMA DOCK CO., LTD.

(14)

ロイド

108

M/M 9570

'NAGARA MARU'

Nagara Maru

NARUTO MARU

設計部
山本
昭和 年 月

旺		
監査	検査	
外註	船材	計

009570-009579-0020

009570-009579-0020

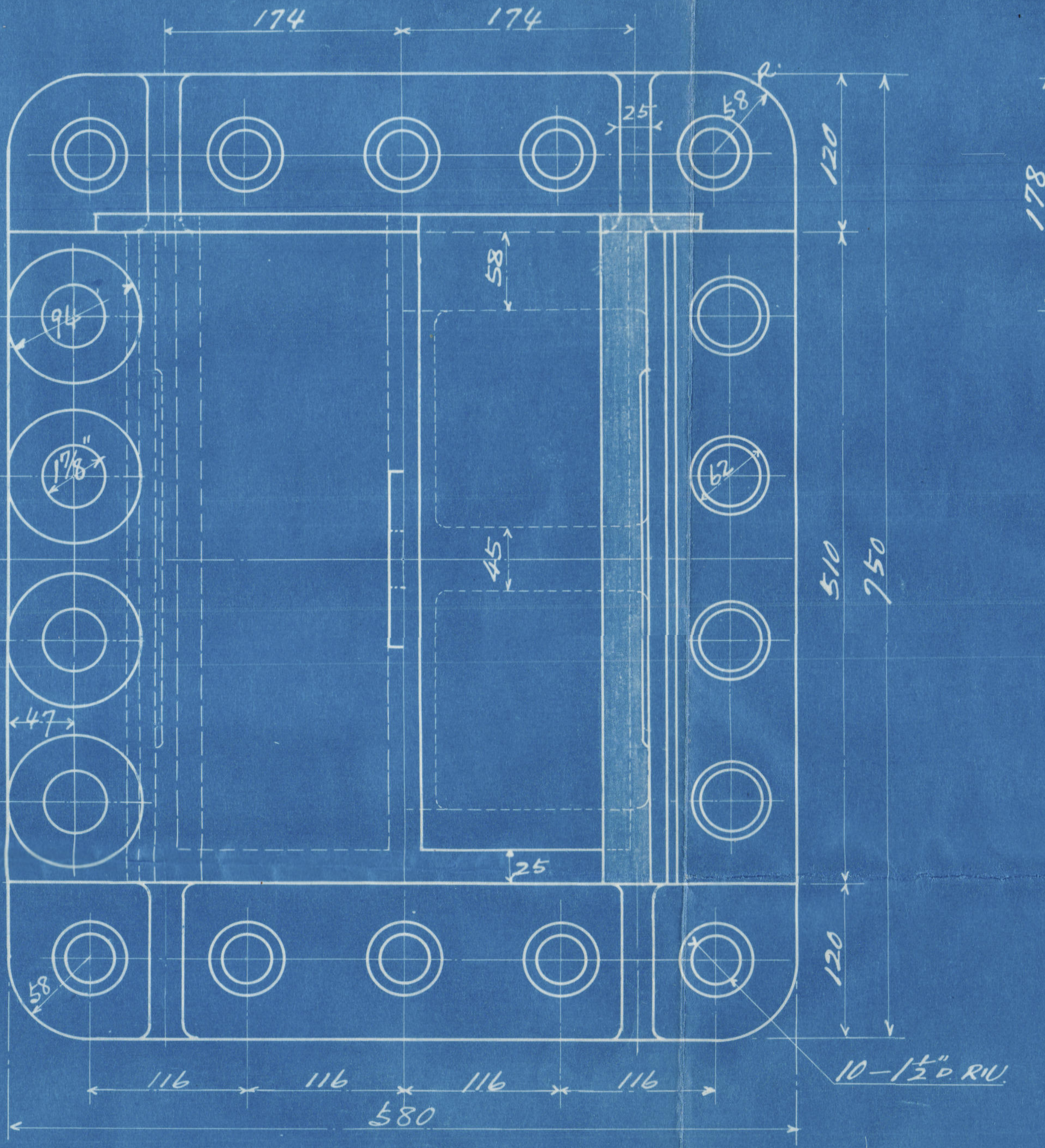
圖面來歷

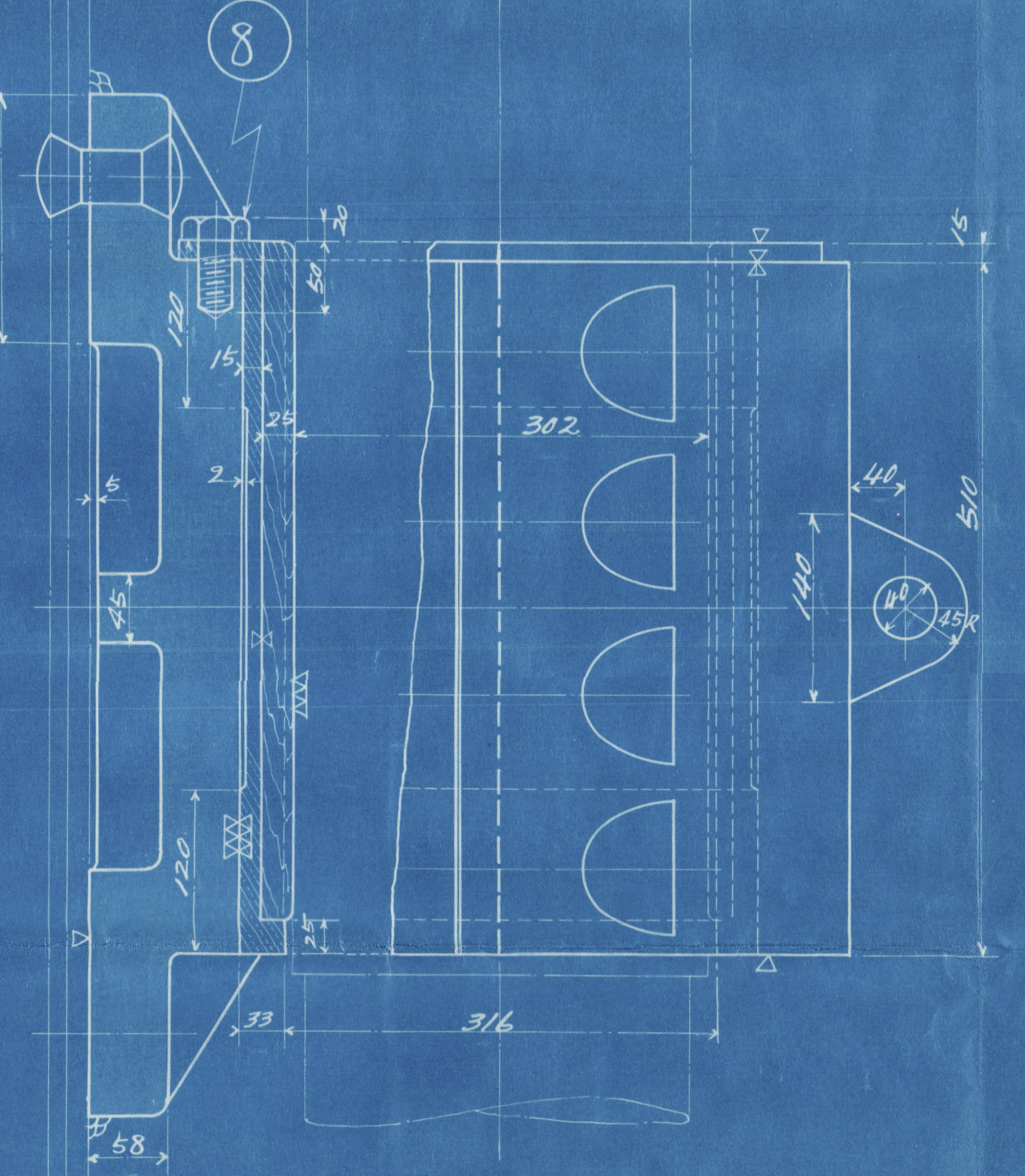
製作表（一隻分）

WITH LLOYD'S CERTIFICATE

工事區分	符號	名稱	材質	合計重量	製造個數 2			製作工場	加工工場
					常備	豫備	合計		
	1	GUIDE BEARING BOTTOM PART	C.S.	980 K.G.			2	イ	キ
	2	" COVER	"	546			2	イ	"
	3	" BUSH	N.B.	196			4	イ	"
	4	PACK WOOD LINNER	LIGNUM-VITAE	32			2	キ	"
	5	FASTENING BOLT	F.S.	139			16	レ	"
	6	" NUT	"				16	レ	"
	7	LOCK NUT	"				16	レ	"
	8	STUD	"	7			16	レ	"
			計	1,900 K.G.					

CAST STEEL TO BE OF ELECTRIC FURNACE PROCESS


174
174
25
58
R.
120
66
94
126
1⅞"
"
126
47
66
58
45
25
62
510
750
120
58
116
116
116
116
580
10-1½"D RIV.

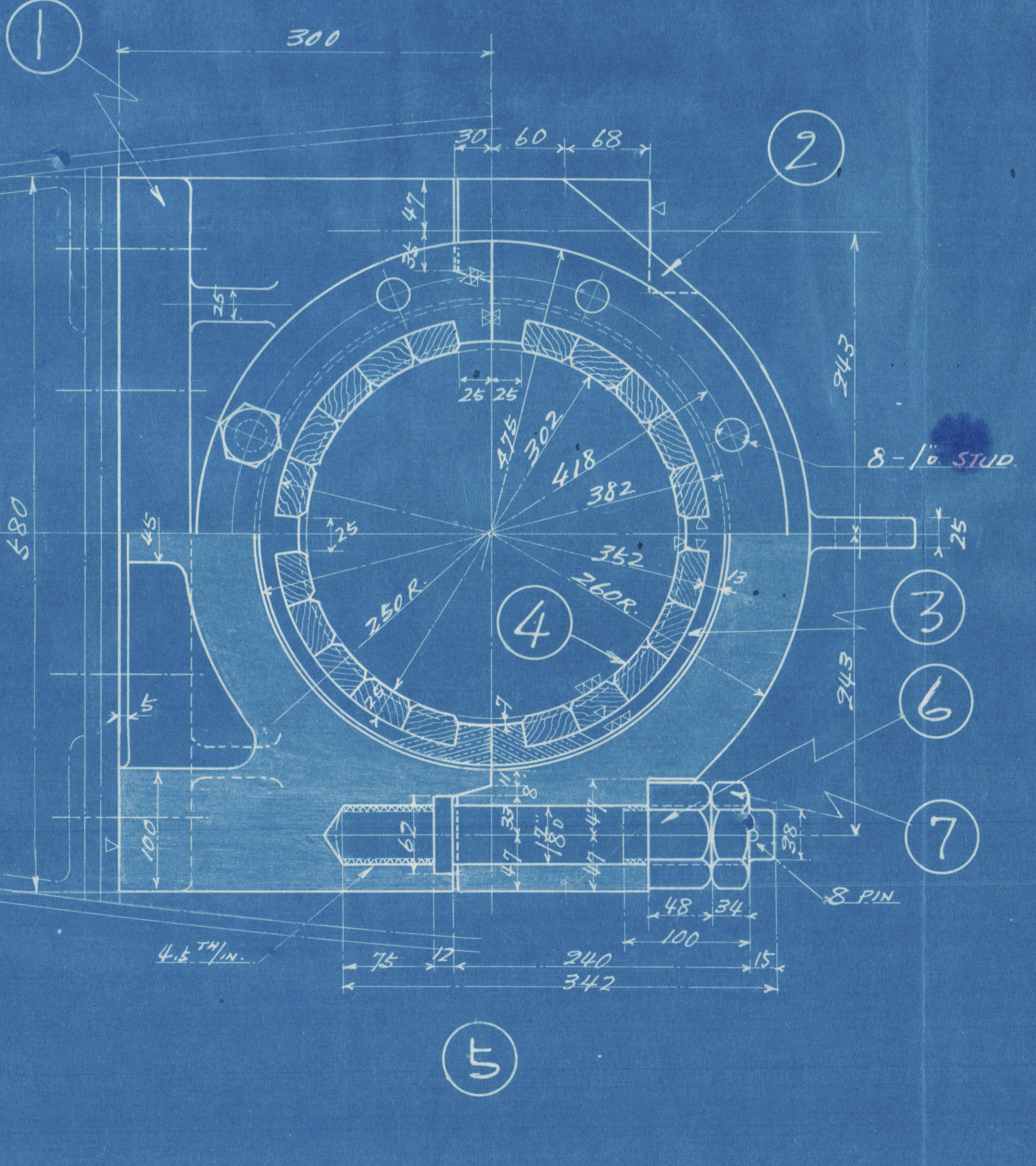

⑧
178
20
50
120
15
25
2
5
45
120
302
40
140
40
45R
15
510
25
33
316
58

STEEL SINGLE SCREW CARGO MOTOR VESSEL

RUDDER GUIDE BEARING

SCALE 1/5

製造数 貳組（壹隻分）


①
300
30
60
68
②
47
33
25
25 25
475
302
418
382
8-1"D STUD
25
243
45
25
352
260R.
250R.
13
④
③
243
⑥
580
5
25
7
11
8
62
33
47
180
47
47
38
100
⑦
8 PIN
48
34
100
4.5 TH/IN.
75
12
240
15
342
⑤

APPROVED
LLOYD'S REGISTER OF SHIPPING
OCT 25 1933
KOBE

M. M. Parker
for H. G. Core

仕上記號	
～	滑ナル黒皮面
▽	荒仕上
▽▽	並仕上
▽▽▽	上仕上

S. 220-222

舵軸受金具

尺度 1/5

RUDDER
GUIDE BEARING

御承認用

8. 9. 16
YOKOHAMA DOCK CO., LTD.

水壓試驗力	瓩

配	扣	艦本	監督	兵監	艤員	船主	海事	ロイド	海協	本社	監査	檢査	
圖	造船	艤裝	木工	船渠	機械	鑄造	鍊鉄	銅工	製罐	電氣	外註	船材	計

009570-009579-0020

14/6/33
Upper-bearing
Lower-bearing
Hole 100x80 m/m on port & stb'd side to take the keys for lifting the brass-bushes
Linings to be well shrunk on
Access-Opening
Linings are to be well shrunk on
Section x-x
1:5
Rudder-body 15 m/m
Doubling-plate 250 x 15 m/m
Section y-y
1:5
Arrangement
1:10, 1:5
Upper-bearing.
Elevation looking from Stb'd.
Section A-B.
Section E-F.
Brass-bushes for upper-bearing
Section L-M.
Plan view of bearing.
Plan view of bushes
Section C-D.
Section O-P.
Section J-K.
Section G-H.
Lower bearing
Section Q-R.
Brass-bushes for lower-bearing
Section U-V.
Plan view of lower-bearing.
Plan view of bushes
Section X-Y.
Section S-T.
Holes for 2¼" lined bolts (see resp. note)
Grooves to be filled in flush with cement.
1" rivets all around
Centre-line of rudder
3 - 1¼" tapped hole 45 m/m deep.
1" screw-hole (only in flange) to take set-bolt for lifting purposes, brass plug fitted.
1¼" head-screw gunmetal hole in flange 34 m/m ∅ secured by 1¼" m bend plate

Working design.

~ smooth, not to be machined.

▽ roughly machined

▽▽ perfectly "

W.S.
14.6.33

Notes.

1) The inside diameters of the rudder-bearings are to be exactly machined after the rudder-body has been ready welded in all parts and the bearings have been fitted in place.

2) The holes for the lined-coupling bolts in upper-bearing are to be exactly machined in accordance to coupling of rudder-head, after the two rudder-bearings have been placed in perfectly straight line to centerline of rudder-head.

3) The brass-bushes are to be jointed carefully with fat.

GEN ~~BOX No~~ 520 ⑭

Materials: Responding to Japanese Government-Rule and to Lloyds Register of shipping.

220 Nagara Maru. 222 Naruto Maru

Pos.	Number	Object	Material	weight	Obs.
⑨	2	Bushes	lignum vitae		
⑧	6	Head-screw 1¼" thread	gunmetal		110 m/m long
⑦	6	Head-screw 1¼" thread	gunmetal		80 " "
⑥	1	Brass-bushes half } upper-bearing	"		
⑤	1	" " "	"		
④	1	" " " } lower-bearing	"		
③	1	" " "	"		
②	1	Lower-bearing	Cast-steel		
①	1	Upper-bearing a. coupling piece	" "		

"NAGARA MARU"
M/M 9570

DEUTSCHE WERFT
1.6.33
HAMBURG

No	Alteration	Name	Date

DW

Abt.: Sk.

Lower and upper bearing for „Simplex" Balance Rudder.

Maßstab: 1:5, 1:10, 1:1.

M.S 220/22
Jokohama Dockyard
AA. 4872/74

Zeichnungs-Nummer
Sk. R. 321 2

Lichtpause Nr.

am

gezeichnet	geprüft:	Norm. gepr.	gesehen	genehmigt
Schw. Suk.	1/VI. 33			

DIN 200
~ glatt nicht bearb.
▽ grob bearbeiten
▽▽ sauber bearbeiten
▽▽▽ fein bearbeiten

Ersatz für:
Ersetzt durch:

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